CLAIMS

What is claimed is:

1. A digital headend system for communicating a plurality of video packets, a plurality of data packets, a plurality of voice packets, and a plurality of control packets, comprising:

a buffering module configured to receive said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets;

a first re-packetization module in communication with said buffering module, said first re-packetization module configured to combine said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets to generate a first re-packetization module output; and

a first synchronizing module configured to receive said first re-packetization output and configured to generate a first synchronous output stream having said plurality of video packets, said plurality of data packets, said plurality of voice packets and said plurality of control packets.

2. The digital headend system of claim 1 wherein said buffering module further comprises:

a first buffering module configured to receive a first plurality of video packets;

a second buffering module configured to receive a first plurality of data packets;

a third buffering module configured to receive a first plurality of voice packets; and

a fourth buffering module configured to receive a first plurality of control packets.

3. The digital headend system of claim 2 wherein said first buffering module, said second buffering module, said third buffering module, and said fourth buffering module each are configured to generate a destination address which identifies said first re-packetization module.

4. The digital headend system of claim 2 further comprising a second re-packetization module in communication with said first, second, third, and fourth buffering module, said second re-packetization module configured to combine said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets to generate a second re-packetization module output.

5. The digital headend system of claim 4 wherein said first buffering module, said second buffering module, said third buffering module, and said fourth buffering module each are configured to generate a destination address which identifies said second re-packetization module.

6. The digital headend system of claim 5 further comprising a second synchronization module configured to receive said second re-packetization module output, said second sychronization module configured to generate a synchronous output stream having said plurality of video packets, said plurality of data packets, said plurality of voice packets and said plurality of control packets.

7. The digital headend system of claim 1 wherein each of said plurality of video packets are MPEG transport stream packets.

8. The digital headend system of claim 7 wherein each of said plurality of data packets are MPEG transport stream packets.

9. The digital headend system of claim 8 wherein each of said plurality of voice packets are MPEG transport stream packets.

10. The digital headend system of claim 1 wherein said first synchronous output stream occupies one channel.

11. A digital headend system for communicating a plurality of video packets, a plurality of data packets, and a plurality of control packets, comprising:

a buffering module configured to receive said plurality of video packets, said plurality of data packets, and said plurality of control packets;

a first re-packetization module in communication with said buffering module, said first re-packetization module configured to combine said plurality of video packets, said plurality of data packets, and said plurality of control packets to generate a first re-packetization module output; and

a first synchronizing module configured to receive said first re-packetization output and configured to generate a first synchronous output stream having said plurality of video packets, said plurality of data packets, and said plurality of control packets.

12. The digital headend system of claim 11 wherein said buffering module further comprises:

a first buffering module configured to receive a first plurality of video packets;

a second buffering module configured to receive a first plurality of data packets; and

a third buffering module configured to receive a first plurality of control packets.

13. The digital headend system of claim 12 wherein said first buffering module, said second buffering module, and said third buffering module each are configured to generate a destination address which identifies said first re-packetization module.

14. The digital headend system of claim 12 further comprising a second re-packetization module in communication with said first, second, and third buffering module, said second re-packetization module configured to combine said plurality of video packets, said plurality of data packets, and said plurality of control packets to generate a second re-packetization module output.

15. The digital headend system of claim 14 wherein said first buffering module, said second buffering module, and said third buffering module each are configured to generate a destination address which identifies said second re-packetization module.

16. The digital headend system of claim 15 further comprising a second synchronization module configured to receive said second re-packetization module

output, said second sychronization module configured to generate a synchronous output stream having said plurality of video packets, said plurality of data packets, and said plurality of control packets.

17. The digital headend system of claim 11 wherein each of said plurality of video packets are MPEG transport stream packets.

18. The digital headend system of claim 17 wherein each of said plurality of data packets are MPEG transport stream packets.

19. The digital headend system of claim 11 wherein said synchronization module is a programmable logic module having a memory module.

20. The digital headend system of claim 11 wherein said first synchronous output stream occupies one channel.

21. A digital headend system for communicating a plurality of video packets, a plurality of voice packets, and a plurality of control packets, comprising:

a buffering module configured to receive said plurality of video packets, said plurality of voice packets, and said plurality of control packets;

a first re-packetization module in communication with said buffering module, said first re-packetization module configured to combine said plurality of video packets, said plurality of voice packets, and said plurality of control packets to generate a first re-packetization module output; and

a synchronizing module configured to receive said first re-packetization output and configured to generate a first synchronous output stream having said plurality of video packets, said plurality of voice packets and said plurality of control packets.

22. The digital headend system of claim 1 wherein said buffering module further comprises:

a first buffering module configured to receive a first plurality of video packets;

a second buffering module configured to receive a first plurality of voice packets; and

a third buffering module configured to receive a first plurality of control packets.

23. The digital headend system of claim 22 wherein said first buffering module, said second buffering module, and said third buffering module each are configured to generate a destination address which identifies said first re-packetization module.

24. The digital headend system of claim 22 further comprising a second re-packetization module in communication with said first, second, and third buffering module, said second re-packetization module configured to combine said plurality of video packets, said plurality of voice packets, and said plurality of control packets to generate a second re-packetization module output.

25. The digital headend system of claim 24 wherein said first buffering module, said second buffering module, and said third buffering module each are configured to generate a destination address which identifies said second re-packetization module.

26. The digital headend system of claim 25 further comprising a second synchronization module configured to receive said second re-packetization module output, said second sychronization module configured to generate a synchronous output stream having said plurality of video packets, said plurality of voice packets, and said plurality of control packets.

27. The digital headend system of claim 21 wherein each of said plurality of video packets are MPEG transport stream packets.

28. The digital headend system of claim 27 wherein each of said plurality of voice packets are MPEG transport stream packets.

29. The digital headend system of claim 21 wherein said synchronization module is a programmable logic module having a memory module.

30. The digital headend system of claim 21 wherein said first synchronous output stream occupies one channel.

31. A method for communicating a plurality of video packets, a plurality of data packets, a plurality of voice packets, and a plurality of control packets, comprising:

receiving said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets;

communicating said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets across a shared bus; and

processing said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets communicated across said shared bus to occupy one communications channel.

32. The method of claim 31 further comprising,

generating a synchronous output stream for said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets.

33. The method of claim 31 wherein said receiving said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets, further comprises:

buffering said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets; and

identifying a re-packetization module to communicate said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets.

34. The method of claim 31 wherein said processing said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets in a re-packetization module to generate a re-packetization output; and

generating a synchronous output stream from said first re-packetization output.

35. The method of claim 33 wherein said processing said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of data packets, said plurality of voice packets, and said plurality of control packets in said re-packetization module to generate a re-packetization output; and

generating a synchronous output stream from said first re-packetization output.

36. A method for communicating a plurality of video packets, a plurality of data packets, and a plurality of control packets, comprising:

receiving said plurality of video packets, said plurality of data packets, and said plurality of control packets;

communicating said plurality of video packets, said plurality of data packets, and said plurality of control packets across a shared bus; and

processing said plurality of video packets, said plurality of data packets, and said plurality of control packets communicated across said shared bus to occupy one communications channel.

37. The method of claim 36 further comprising,

generating a synchronous output stream for said plurality of video packets, said plurality of data packets, and said plurality of control packets.

38. The method of claim 36 wherein said receiving said plurality of video packets, said plurality of data packets, and said plurality of control packets, further comprises:

buffering said plurality of video packets, said plurality of data packets, and said plurality of control packets; and

identifying a re-packetization module to communicate said plurality of video packets, said plurality of data packets, and said plurality of control packets.

39. The method of claim 36 wherein said processing said plurality of video packets, said plurality of data packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of data packets, and said plurality of control packets in a re-packetization module to generate a re-packetization output; and

generating a synchronous output stream from said first re-packetization output.

40. The method of claim 38 wherein said processing said plurality of video packets, said plurality of data packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of data packets, and said plurality of control packets in said re-packetization module to generate a re-packetization output; and

41. A method for communicating a plurality of video packets, a plurality of voice packets, and a plurality of control packets, comprising:

receiving said plurality of video packets, said plurality of voice packets, and said plurality of control packets;

communicating said plurality of video packets, said plurality of voice packets, and said plurality of control packets across a shared bus; and

processing said plurality of video packets, said plurality of voice packets, and said plurality of control packets communicated across said shared bus to occupy one communications channel.

42. The method of claim 41 further comprising,

generating a synchronous output stream for said plurality of video packets, said plurality of voice packets, and said plurality of control packets.

43. The method of claim 41 wherein said receiving said plurality of video packets, said plurality of voice packets, and said plurality of control packets, further comprises:

buffering said plurality of video packets, said plurality of voice packets, and said plurality of control packets; and

identifying a re-packetization module to communicate said plurality of video packets, said plurality of voice packets, and said plurality of control packets.

44. The method of claim 41 wherein said processing said plurality of video packets, said plurality of voice packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of voice packets, and said plurality of control packets in a re-packetization module to generate a re-packetization output; and

generating a synchronous output stream from said first re-packetization output.

45. The method of claim 43 wherein said processing said plurality of video packets, said plurality of voice packets, and said plurality of control packets, further comprises:

combining said plurality of video packets, said plurality of data packets, and said plurality of control packets in said re-packetization module to generate a re-packetization output; and

generating a synchronous output stream from said first re-packetization output.